

**St. Joe Travel Management EA**  
**Botany Report for**  
**Noxious Weeds and Threatened, Endangered, and Sensitive Plants**

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## **Noxious Weeds**

### **Introduction**

Noxious weeds are non-native invasive plants that out-compete and displace native plants, interfere with native plant germination and survival, change soil functions, and contribute to a host of other factors that can alter vegetation composition and structure.

The National Invasive Species Council defines “invasive species” as a species that is: (1) nonnative (or alien) to the ecosystem under consideration; and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Overall these non-native invasive species (weeds) are detrimental by having low palatability to wildlife and livestock; being poor protectors of soil and water resources; displacing native vegetation, and increasing wildfire hazards.

Disturbed soils provide ideal habitat for invasive plants as they take advantage of the disturbance to enter and invade native plant communities. When natural communities are compromised by invasive plants they have “reduced natural diversity by causing extinctions and shifts in patterns of relative abundance” (Roche and others 1991). Seeds can be carried in soil clinging to vehicles and be deposited in weed-free areas. Roads can also facilitate invasion and spread by altering habitat conditions, stressing or removing native species, and allowing easier movement of natural or human vectors. The Travel Management project does not propose new ground-disturbing activities, rather it proposes alternatives that would reduce motorized routes or change the type and seasonal of motorized use.

Some invasive plant species may not require any soil disturbance at all to invade native ecosystems. These weeds can thrive if seeds are simply introduced. In these situations, prevention and monitoring become especially important. Depending upon the access, facilitation of the spread by invaders may be increased or decreased depending upon the amount of disturbance. According to Roche and others (Roche and others 1991) dispersal of noxious weeds occurs mainly by humans. Additionally, contaminated livestock feed and ineffective re-vegetation practices on disturbed lands can be a source for noxious weeds. Other vectors for dispersal include wind, water, and animals.

Land use practices and resource conditions can encourage the initial establishment of invasive plants. In mountainous areas, roads and trails are the primary means by which people and their equipment interact with the environment and are, therefore, important spread pathways. Cross-country travel and road and trail management create sustained levels of soil disturbance. This disturbance can allow invasive plants to become established, increasing seed dispersal over time. Isolated infestations along roads and trails may colonize adjacent native habitats or spread into previously uninfested areas. The St. Joe Ranger District uses best management practices to reduce existing populations of invasive species and reduce their spread. Forest Service Manual 2080 and 2001 describe some of these practices. For example, a Forest-wide special order requiring weed-free hay and feed for livestock has

been implemented (36 CFR 261.50); and the St. Joe Ranger District has implemented an integrated weed management program that includes prevention through public education, design features for projects that result in ground disturbance, and biological, mechanical and chemical weed suppression. A formal cooperative weed management area (Inland Empire Cooperative Weed Management Area) has been formed that encompass the St. Joe Ranger District. This weed management area facilitates efficient management in cooperation with agency, public, and private entities through information sharing, public education, coordination of treatment, and cooperative grant applications.

## **Regulatory Framework**

Noxious weeds are plant species that have been officially designated by federal, state, or county officials. Direction regarding the development and coordination of programs for the control and evaluation of noxious weeds in the planning process is found in federal legislation, regulations, and policies including:

Forest Service Manual (Chapter 2080, as amended) (USDA 2001b) directs Forest officers to control noxious weeds on National Forest System lands, and cooperate fully with State, County, and Federal officers.

The IPNF Forest Plan (2015) and St. Joe Ranger District Noxious Weed Control Project FEIS and Record of Decision (1999) provide direction for control of noxious weeds on National Forest System lands.

Forest Plan desired condition FW-DC-VEG-10 states: Newly invading, non-native invasive plant species are treated and populations are contained or eradicated. The weed program on the Forest uses integrated pest management approaches, including prevention and control measures that limit introduction, intensification, and spread due to management activities. Agreements with cooperative weed management areas assist in control efforts across jurisdictional boundaries. An objective of the Forest Plan is to treat non-native invasive plants to reduce negative impacts of non-native organisms (FW-OBJ-VEG-01). Over the life of the Forest Plan all sites that are discovered with newly invading non-native invasive species would be treated to reduce non-native invasive plant density, infestation size, and/or occurrence (FW-OBJ-VEG-02).

## **Analysis Area**

The geographic scope of the analysis for noxious weeds is the roads and trails on National Forest System lands of the St Joe Ranger District and roads on adjacent lands.

## **Analysis Methods**

The analysis for noxious weeds considered noxious weed species known to be present on the district and the extent of infestation from documented inventories, control and monitoring records, and anecdotal evidence (PF: B-13 &14, B-17). The 2014 weeds list for the Idaho Panhandle National Forest includes over 70 species of non-native, invasive plant species that may occur on the forest (PF: B-3). Vegetative communities within the St. Joe Ranger District vary from dry forest to wet forest habitats. A description of these communities and their susceptibility to weed invasions can be found in project file document B-1. The suitability of a site to weed invasion depends on the weed species, climatic factors that are expressed in the cover vegetation type, and the type of activity, when applicable.

The analysis compares the changes in potential risk of weed establishment and spread of each alternative with the existing condition. The existing actual motorized use on trails was used for the existing condition. Motorized route designations for each alternative are compared with the existing condition. Documentation, references, and data used for this project are the most current methods available to date for this type of analysis.

Susceptibility parameters provided by Rice and Toney (1997) were used as a coarse filter to estimate the areas of the district that are susceptible to invasion by tansy ragwort (*Senecio jacobaea*), meadow hawkweed (*Hieracium caespitosum*), orange hawkweed (*Hieracium aurantiacum*), rush skeleton weed (*Chondrilla juncea*), and yellow starthistle (*Centaurea solstitialis*). See Table 1 and **Table 2**. This is based on the habitat types of stands in the FSVeg database. A 50-foot wide area on either side of a travel route (miles of trails and roads) is the area most likely to be colonized by noxious weeds spread from vehicular travel (USDA Forest Service 2009 CDA River RD Travel Plan EA p. 99). Research indicates that the greater the distance from the edge of a disturbed, motorized travel route, the fewer non-native plant species are present in native plant communities (Tyser and Worley 1992).

Many of the miles that are highly susceptible to one weed species are also susceptible to others. The areas that are susceptible to invasion by these five weed species may also be susceptible to invasion from other weed species that may be present on the Idaho Panhandle National Forest. Areas that are not considered under Rice and Toney's susceptibility parameters may still be invaded by weeds. While many roads have been closed or put into storage, motorized access, legal motorized access for administrative purposes, and illegal access occurs. However, the amount of motorized use on these roads is decreased compared to when they were open roads with full motorized access.

### **Historic Condition**

Past and ongoing activities have led to some habitat modification and fragmentation. Past activities such as road construction, mining, recreational uses, timber harvests, grazing, wildfires, and natural events have all been potential vectors for weed transportation into the area and have contributed to the reduction of native plant species diversity at these sites.

Historically, it can be assumed, there were no noxious weeds within the project area. The noxious weeds included in the St. Joe Noxious Weed Control Project FEIS (USDA 1999a) and new invasive plant species to the IPNF originate in Europe and Asia. Therefore seed sources of invasive plants were not available before widespread human disturbance, travel, and commerce. The first recorded sightings in Shoshone County, of several currently established weed species such as St. John's wort, Canada thistle, common tansy, and sulphur cinquefoil, date from the 1940s. However, when noxious weeds first appeared on the district is unknown. Introduction of noxious weeds likely began after the first large-scale disturbance where a non-native species seed source was present.

Large-scale timber harvests began in the mid-1880s, large-scale wildfires across the district were reported in the late 1880s through 1910, and grazing on the south half of the district began in the 1920s. While the 1872 Mining Act prompted some interest in the area's mineral resources, the discovery of gold and silver in the adjacent Coeur d'Alene River area in the early 1880s not only increased interest in mining, but also started the beginning of homesteading and furthered the need for timber. Horse-back riding, fishing, camping, hiking, boating, rafting, and other recreational activities have been popular on the district for decades.

A limited program of noxious weed treatment began on the St. Joe Ranger District in 1991. Until 1997, few weed surveys were done on the district. In 1999 the number of noxious weed surveys greatly increased: 58 priority sites for weed treatment were identified and an estimated 624 acres were infested. Since 1999 an estimated 500-600 acres of noxious weeds are treated yearly.

### **Existing Condition**

The 2014 weeds list for the Idaho Panhandle National Forest includes over 70 species (PF: B-3). Weeds may be treated in areas not specified in the St. Joe Noxious Weed Control Project EIS and ROD by following the adaptive management strategy laid out in the FEIS that allows for newly identified invasive species and new populations to be treated.

Inventories indicate wide-spread invasive (weed) plant species with most populations occurring along roadsides, trail heads, and campgrounds. In 2008 a project of re-seeding dispersed recreational sites and trail heads along the St. Joe River corridor began and, if funding is available, would be expanded to other areas of the district. This project had a high success rate with about 75% of the sites re-visited in 2009 having few to no weeds (PF: B-15). The St. Joe Ranger District noxious weed program continues to treat noxious weed sites and promotes the re-establishment of native/non-invasive plant species (PF: B-17).

Susceptibility parameters provided by Rice and Toney (1997) allow the calculation of miles susceptible to invasion by five aggressive noxious weeds. Queries of the FSVeg database using the habitat parameters provided by Rice and Toney resulted in a coarse filter that showed large areas of the district are susceptible to invasion by tansy ragwort (*Senecio jacobaea*), meadow hawkweed (*Hieracium caespitosum*), orange hawkweed (*Hieracium aurantiacum*), rush skeleton weed (*Chondrilla juncea*), and yellow starthistle (*Centaurea solstitialis*). See **Table 1** and **Table 2**. Many of the miles that are highly susceptible to one weed species are also susceptible to others. Even areas that are not considered under Rice and Toney's susceptibility parameters may be invaded by invasive (weeds) plant species, though the invaded area is often much smaller (incidental). While many roads have been closed or put into storage, motorized access, legal motorized access for administrative purposes, and illegal access occurs. However, the amount of motorized use on these roads is decreased compared to when they were open roads with full motorized access.

**Table 1: Existing Miles of Roads at Risk for Weed Establishment**

Species	Open	Seasonal OHV	OHV ≤50"
yellow star-thistle	35.7	0	11.4
rush skeletonweed	727.0	0	382.6
orange hawkweed	726.8	0	382.6
meadow hawkweed	726.4	0	382.6
tansy ragwort	727.0	0	382.6

**Table 2: Existing Miles of Trails at Risk for Weed Establishment**

Species	OHV ≤50"	Non-motorized	Single-track	Seasonal
yellow star-thistle	1.1	7.7	13.7	0
rush skeletonweed	28.8	230.9	269.3	0
orange hawkweed	28.8	231.9	269.4	0
meadow hawkweed	47.7	302.4	324.7	0
tansy ragwort	28.8	230.9	269.3	0

## **Environmental Consequences**

All action alternatives would reduce the amount of public motorized access by reducing the miles of routes available for motorized use and by prohibiting cross-country motorized use. Changes in access that reduce the numbers of humans along a weed vector reduce the risk of noxious weed spread and invasion. Changes that lead to a reduction in use and limit the type of mechanisms for transport of weed seeds decrease the risk of weed spread. Noxious weeds would continue to spread in all alternatives, but spread rates may be slightly reduced from the existing condition. The rate at which this would occur would vary slightly with each alternative.

No roads or trails would be constructed, so no ground-disturbing activities beyond those from use of the existing routes would occur in any alternative. The proposed change in miles of motorized use on roads and trails determines if risk of possible infestation would change.

### **Alternative A: Existing Condition**

This alternative proposes to maintain the existing level of management on the St. Joe Ranger District. It does not propose any new management. Changes to road and trail access would continue to occur on a project by project basis. It allows for motorized cross-country travel. It assumes the actual use on trails would continue even though many of those trails are not specifically designated for motorized use.

### **Direct and Indirect Effects of Alternative A**

The greatest direct threat from noxious weeds under this alternative is from the introduction of new invader species by way of existing roads, trails, cross-country travel, and other vectors. Unauthorized, illegal, and cross-country OHV use in previously undisturbed areas creates soil disturbance and the spread of invasive weeds (Ingalsbee 2004). Other activities can also bring in new invaders, for example, livestock and other animals may have weed species in their digestive tracts prior to beginning the use of weed-free straw. Weed species tend to maintain their viability even when passing through an animal's digestive system. These seeds can pass through the animal's system to be deposited in previously un-infested areas. This is true even if they are fed weed-free hay while in the backcountry. According to Wells and Lauenroth 2007:

“... horses have the potential to disperse a large number of seeds from a wide variety of plant types. Because horses take an average of 3 to 4 days, and up to 10 days, to eliminate the seeds they ingest, they represent an important vector for long distance seed dispersal from where the horses are kept to wildlands. Many horses are grazed in pastures that contain “weedy species” and, in some cases, in pastures that contain aggressive alien species. Many horses are transported to backcountry trails where they can then introduce new species. The potential for horses to introduce new species increases with the time they spend in the backcountry”.

Noxious weed parts can also easily be transported on all size vehicles. Often stems and seeds are attached to wheels, spokes, and/or mud clinging to the undercarriage of vehicles (Sheley and others 1996). Wildlife can also transport noxious weeds in their digestive systems or entangled in fur (Sheley and others 1996). According to the USDA report (2007) “Meeting the Challenge: Invasive Plants in Pacific Northwest Ecosystems” wind is an effective dispersal method. The report cites several areas in the Pacific Northwest that have been infested by noxious weeds through the dispersal of seed by wind.

“Hikers, campers, and recreationists can spread noxious weed seeds on their clothing as they pick the flowers and discard the wilted parts along trails and recreational access sites. Once discarded, these plants continue seed development” (Sheley and others 1996). According to Roche and Roche (1991) weed seeds, especially those of knapweeds are dispersed “by wind or passing animals” and “long distance dispersal is mainly by humans”. Seed heads will also cling to clothing and gear to fall off along the trails and routes, thus spreading noxious weeds. Most activities done in our National Forests have some risk of spreading and/or introducing noxious weeds.

Plant diversity is affected by the spread of invasive weeds. The St. Joe Ranger District as a whole continues to maintain species diversity; however, in areas such as those along roads, trails, campgrounds, and highly disturbed areas there is a loss of local or site diversity. These local areas will continue to be at risk for decreased diversity where noxious weeds have invaded. The current noxious weed treatments help to maintain species diversity at treated sites. Planting with native species, as part of the noxious weed treatment, helps to improve native diversity at a local level by decreasing the area available to invasive species.

**Table 1** and **Table 2** show the miles of risk for potential weed spread on roads and trails. The closed and administrative use roads in this alternative have a very low risk compared to other road types. These roads have a decreased risk over time as the roads re-vegetate and canopy cover becomes established. Some roads have established vegetation at this time and weeds are treated on some.

### **Cumulative Effects of Alternative A**

“Species that invade native plant communities reduce the natural diversity (within that habitat) by leading to shifts in patterns of abundance and may cause extirpation of (native) species from a site” (Roche and Roche 1991). Diversity is reduced within certain habitats due to weed invasion, and native plant habitat integrity is decreased. Currently plant diversity across the district remains stable because some areas and landscapes have no invasive plants at this time. However, localized areas where invasive species have established have decreased habitat integrity. Past and ongoing activities have led to habitat modification and fragmentation. Road construction, recreational use, vehicular traffic, mining, timber harvests, and natural events have all created possible vectors for weed introduction and encroachment. Current and reasonably foreseeable activities include road and trail maintenance, road construction, road decommissioning, culvert upgrades, firewood collection, recreational activities, grazing, timber harvest and related activities, mining, and fire suppression activities. These types of activities could result in new disturbed sites available for colonization by weeds, and they do offer the possibility of introduction of new species of weeds to the watershed. Overall, the effect of the No-Action Alternative is expected to result in an increase in weed numbers within the area over time. However, weed treatments are on-going throughout the St. Joe District. New sites and new invaders to the district are treated aggressively to halt spread and/or eradicate the new site. In addition, weed control methods may become more effective through time as more data is collected and new treatments become available.

### **Direct and Indirect Effects of Alternative B**

Effects of Alternative B would be a slight reduction in spread of weeds from motorized access on highly susceptible ground because Alternative B reduces motorized road and trail access in areas that are highly susceptible to weed infestation compared to the existing condition.

The prohibition of motorized cross-country travel except in limited areas to access dispersed sites would assist in minimizing the spread of weeds. Alternative B would reduce cross-country motorized use and its associated soil disturbance and spread of invasive weeds in undisturbed areas (Ingalsbee 2004).

Once established along roadways, weeds can spread into adjacent, un-infested habitat and compete with native plant communities. Weeds seeds may initially travel, at a minimum, a distance of fifty feet perpendicular to roads. In some situations they may spread much farther, depending on the species, air currents, travel speed along roads, and habitat suitability. After weeds are established along roads, they may spread farther from the road over time, especially if canopy cover decreases. If the canopy cover remains high and there is no disturbance, the likelihood of invasive plants taking over those areas is very low.

There is a risk of invasive weed spread on any open canopy, disturbed area; but the risk is slightly greater on areas with motorized use. As discussed under Alternative A, non-motorized trails used by humans and stock still have a risk for weed spread; however, the speed at which that spread occurs is less than on motorized routes (Wells and Lauenroth 2007). Also the numbers of users tend to be less than on motorized routes as motorized routes may be easier to access and used more often. This is in large part due to the distances that motorized vehicles travel.

Compared to the existing condition, Alternative B would have fewer miles of motorized roads in areas that are highly susceptible to weeds. **Table 3** shows the miles of road in areas that are highly susceptible to potential weed infestation in the Alternative B.

**Table 3: Miles of Roads at Risk for Weed Establishment: Alternative B**

Species	Open	OHV ≤50"	Seasonal
yellow star-thistle	35.2	9.7	1.9
rush skeletonweed	717.3	279.8	9.3
orange hawkweed	717.1	279.8	9.3
meadow hawkweed	716.7	279.8	9.3
tansy ragwort	717.3	279.8	9.3

**Table 4** shows the miles of trails at risk for weed invasion according to susceptibility parameters provided by Rice and Toney (1997). Compared to the existing condition, Alternative B would have fewer miles of motorized trails in areas that are highly susceptible to weeds (**Table 1** and **Table 4**). Trails that are predominantly used by stock are also at a high risk; however weeds on non-motorized routes spread at a slower rate compared to motorized trails.

**Table 4: Miles of Trails at Risk for Weed Establishment: Alternative B**

Species	OHV ≤50"	Non-motorized	Single-track	Seasonal motorized
yellow star-thistle	1.1	9.8	11.5	0.1
rush skeletonweed	28.8	290.3	192.0	11.5
orange hawkweed	28.8	291.4	192.0	11.5
meadow hawkweed	27.8	368.0	238.6	11.8
tansy ragwort	17.2	293.8	196.9	11.5

### **Direct and Indirect Effects of Alternative C**

Effects of Alternative C would be a slight reduction in spread of weeds from motorized access because Alternative C reduces motorized road and trail access in areas that are highly susceptible to weed infestation compared to the existing condition.

The prohibition of motorized cross-country travel except in limited areas to access dispersed sites would assist in minimizing the spread of weeds. Alternative C would reduce cross-country motorized use and its associated soil disturbance and spread of invasive weeds in undisturbed areas (Ingalsbee 2004).

Once established along roadways, weeds can spread into adjacent, un-infested habitat and compete with native plant communities. Weeds seeds may initially travel, at a minimum, a distance of fifty feet perpendicular to roads. In some situations they may spread much farther, depending on the species, air currents, travel speed along roads, and habitat suitability. After weeds are established along roads, they may spread farther from the road over time, especially if canopy cover decreases. If the canopy cover remains high and there is no disturbance, the likelihood of invasive plants taking over those areas is very low.

There is a risk of invasive weed spread on any open canopy, disturbed area; but the risk is slightly greater on areas with motorized use. As discussed under Alternative A, non-motorized trails used by humans and stock still have a risk for weed spread; however, the speed at which that spread occurs is less than on motorized routes (Wells and Lauenroth 2007). Also the numbers of users tend to be less than on motorized routes as motorized routes may be easier to access and used more often. This is in large part due to the distances that motorized vehicles travel.

**Table 5** shows the miles of road in areas that are highly susceptible to potential weed infestation in the Alternative C.

**Table 5: Miles of Roads at Risk for Weed Establishment: Alternative C**

Species	Open	OHV ≤50"	Seasonal
yellow star-thistle	35.2	11.0	1.9
rush skeletonweed	714.2	299.6	10.7
orange hawkweed	714.0	299.6	10.7
meadow hawkweed	713.6	299.6	10.7
tansy ragwort	714.2	299.6	10.7

**Table 6** shows the miles of trails at risk for weed invasion according to susceptibility parameters provided by Rice and Toney (1997). Compared to the existing condition, Alternative C would have fewer miles of motorized trails in areas that are highly susceptible to weeds (**Table 1** and **Table 6**). Trails that are predominantly used by stock are also at a high risk; however weeds on non-motorized routes spread at a slower rate compared to motorized trails.

**Table 6: Miles of Trails at Risk for Weed Establishment: Alternative C**

Species	OHV ≤50"	Non-motorized	Single-track	Seasonal
yellow star-thistle	1.1	7.9	269.3	1.2
rush skeletonweed	30.0	252.1	203.0	37.5
orange hawkweed	30.0	253.2	203.1	37.5
meadow hawkweed	37.8	323.1	245.7	39.6
tansy ragwort	25.5	253.4	203.0	37.5

### **Direct and Indirect Effects of Alternative D**

Effects of Alternative D would be a slight reduction in spread of weeds from motorized access because Alternative D reduces motorized road and trail in areas that are highly susceptible to weed infestation compared to the existing condition.

The prohibition of motorized cross-country travel except in limited areas to access dispersed sites would assist in minimizing the spread of weeds. Alternative D would reduce cross-country motorized use and its associated soil disturbance and spread of invasive weeds in undisturbed areas (Ingalsbee 2004).

Once established along roadways, weeds can spread into adjacent, un-infested habitat and compete with native plant communities. Weeds seeds may initially travel, at a minimum, a distance of fifty feet perpendicular to roads. In some situations they may spread much farther, depending on the species, air currents, travel speed along roads, and habitat suitability. After weeds are established along roads, they may spread farther from the road over time, especially if canopy cover decreases. If the canopy cover remains high and there is no disturbance, the likelihood of invasive plants taking over those areas is very low.

There is a risk of invasive weed spread on any open canopy, disturbed area; but the risk is slightly greater on areas with motorized use. As discussed under Alternative A, non-motorized trails used by humans and stock still have a risk for weed spread; however, the speed at which that spread occurs is less than on motorized routes (Wells and Lauenroth 2007). Also the numbers of users tend to be less than on motorized routes as motorized routes may be easier to access and used more often. This is in large part due to the distances that motorized vehicles travel.

**Table 7** shows the miles of road in areas that are highly susceptible to potential weed infestation in the Alternative D.



**Table 7: Miles of Roads at Risk for Weed Establishment: Alternative D**

Species	Open	OHV ≤50"	Seasonal
yellow star-thistle	35.2	11.1	1.9
rush skeletonweed	716.0	293.3	14.9
orange hawkweed	715.8	293.3	14.9
meadow hawkweed	715.4	293.3	14.9
tansy ragwort	716.0	293.3	14.9

**Table 8** shows the miles of trails at risk for weed invasion according to susceptibility parameters provided by Rice and Toney (1997).

Compared to the existing condition, Alternative D would have fewer miles of motorized trails in areas that are highly susceptible to weeds (**Table 1** and **Table 8**). Trails that are predominantly used by stock are also at a high risk; however weeds on non-motorized routes spread at a slower rate compared to motorized trails.

**Table 8: Miles of Trails at Risk for Weed Establishment: Alternative D**

Species	OHV ≤50"	Non-motorized	Single-track	Seasonal
yellow star-thistle	1.1	7.9	10.7	2.8
rush skeletonweed	30.0	245.1	182.5	65.0
orange hawkweed	30.0	246.2	182.5	65.1
meadow hawkweed	37.8	315.7	220.9	71.7
tansy ragwort	25.5	246.4	182.5	65.1

### **Cumulative Effects of Alternatives B, C, and D**

The action alternatives would decrease the miles of both motorized trails and roads. These changes in access would decrease the overall rate of weed spread with the current weed control program.

Noxious weed infestations are present on existing travel routes on the district. The annual program of noxious weed inventory and control reduces the presence of invasive plants across the district, but current funding does not provide for treatment of every infested road and trail. Weed treatment and prevention projects are prioritized and conducted in accordance with the St. Joe Ranger District Noxious Weed Control Final EIS and ROD (USDA 1999). District weed control efforts are coordinated with the Inland Empire Cooperative Weed Management Area, consisting of federal, state, county, and private entities.

While existing infestations of certain weed species may continue to increase on federal lands and adjacent private lands, proposed activities would reduce the risk of weed spread by application of design features to reduce the spread of noxious weeds. Across the district native plant diversity would remain the same as in the existing condition because some landscapes have no invasive plants at this time. New invaders, either a new weed to the district or a new weed to a site not previously infested, would be treated aggressively. Weed treatment practices would reduce, but not eliminate, the risk of weed spread. The US Forest Service does not have control over activities occurring on private lands where weed introduction and spread is likely occurring also.

Past and ongoing activities have led to modification and fragmentation of natural habitat. Road construction, recreational use, vehicular traffic, mining, timber harvests, and natural events have all created possible vectors for weed introduction and encroachment at these sites. Current and reasonably foreseeable activities include grazing, timber harvest and related activities, mining, firewood collection, recreational activities, road maintenance, road construction, road decommissioning, culvert upgrades, and fire suppression activities. These types of activities could result in new disturbed sites available for colonization by weeds, and they do offer the possibility of introduction of new species of weeds to the watersheds.

The overall risk of weed introduction and spread is lower in the action alternatives than the existing condition as both motorized trails and motorized roads (including those open to ATVs) would be decreased. Some previously open roads in habitats with the highest risk to weed establishment would be changed to administrative use only (PF: B-18). Decreasing overall use helps to reduce weed spread. The St. Joe noxious weed program also includes additional activities to prevent weed spread, educate the public, and plant areas with native plant species. Weed treatments will be on-going throughout the St. Joe District as funding allows. New sites and new invaders to the district are treated aggressively to halt spread and/or eradicate the new weeds. Sites that have had effective reduction in individual noxious weeds are seeded with native species. Prevention measures such as treating weeds prior to additional disturbance, and seeding and mulching disturbed areas is an ongoing part of the district program. In addition, noxious weed control methods will become more effective through time as more data is collected, data collection methods are refined (Crosier and Stohlgren 2004), and new treatments become available (IPNF Weed Control EIS [PF: ACT-7]).

### **Consistency with Forest Plan and other Regulatory Direction**

Under the 2015 Forest Plan newly invading non-native invasive plant species are treated and populations are contained or eradicated. The weed program on the Forest uses integrated pest management approaches, including prevention and control measures that limit introduction, intensification, and spread due to management activities. Agreements with cooperative weed management areas assist in control efforts across jurisdictional boundaries (USDA 2015).

All alternatives would meet the intent stated in the 2015 Forest Plan through the existing weed control program that uses integrated pest management approaches. The action alternatives would reduce the introduction, intensification, and spread of noxious weeds by reducing the miles of roads and trails designated for motorized use and prohibiting the use of motorized vehicles off motorized routes.

## **Rare Plants**

### **Introduction**

The purpose of this evaluation is to assess and describe potential effects of the St. Joe Travel Management Plan on Threatened, Endangered, Region 1 Sensitive, and Forest Species of Concern (FSOC) plants (referred to collectively as “rare plants”) and to determine whether any such species or habitat is likely to be affected by the alternatives. This evaluation was prepared in accordance with USDA Forest Service policy (FSM 2670.32 and FSM 2672.4).

Forest Service direction (FSM 2672.1 and FSM 2672.43) requires that programs or activities be reviewed for potential effects on rare species and outlines policy, objectives, and procedures. With the 2105 Forest Plan, habitat for species listed under the Endangered Species Act (ESA) is maintained or restored; and the geographic distributions of sensitive plant species are maintained (USDA 2015).

### **Analysis Area**

The geographic scope of the analysis is the roads and trails of the St Joe Ranger District.

### **Methodology**

Threatened, Endangered, Sensitive (TES), and FSOC plant species can be assigned to one or more rare plant guilds (PF: B-1), which are groups based on similar habitat requirements useful for the purpose of analysis (Mousseaux 1995). For the St. Joe Ranger District the rare plant guilds are: aquatic, deciduous riparian, peatlands, wet forest,

moist forest, dry forest, and sub-alpine. Rock seeps and springs are another habitat that can support certain sensitive species, but they can occur across all guilds and are not identifiable at a coarse scale.

Based on current information regarding preferred habitat and successional state for species within the different guilds, the district stand database indicates the amount of highly suitable rare plant habitat that may be present in the project area. Evaluation of known sites for sensitive species was accomplished using district sensitive plant records and Idaho Department of Fish and Game Conservation Data Center Element Occurrence Records (PF: B-7, B-19). Additionally, a review was conducted of aerial photos, topographical maps, habitat types, and recent literature. An assessment of potentially suitable habitat for the species that may occur on the St. Joe Ranger District was based on habitat types and the habitat guilds (Mousseaux 1998; PF: B-1). A fifty foot wide area on either side of a travel route was used in this analysis, as this is the area most likely to be affected by the changes in access management (USFS 2008). This fifty-foot wide area is referred to as the travel route buffer hereafter. No deciduous riparian or peatland habitats fall within the scope of the project area.

Effects to rare plant species or suitable habitat from proposed activities are generally described as very low, low, moderate, or high, with the following definitions:

very low = no measurable effect on individuals, populations, or habitat

low = individuals, populations, and/or habitat not likely affected

moderate = individuals and/or habitat may be affected, but populations would not be affected, and habitat capability would not over the long term be reduced below a level which could support sensitive plant species

high = populations may be affected and/or habitat capability may over the long term be reduced below a level which could support sensitive plant species

Documentation, references, and data used for this project are the most current science methods to date for this type of analysis.

### **Historic/Existing Condition**

The sub-basins of northern Idaho contain varied and diverse habitats and plant communities. Of the estimated 1,200 to 1,500 plant species known or thought to occur here, about ten percent are considered rare or uncommon.

Large-scale timber harvests began in the mid-1880s, large-scale wildfires across the district were reported in the late 1880s through 1910, and grazing on the south half of the district began in the 1920s. While the 1872 Mining Act prompted some interest in the area's mineral resources, the discovery of gold and silver in the adjacent Coeur d'Alene River area in the early 1880s not only increased interest in mining, but also started the beginning of homesteading and furthered the need for timber. Horse-back riding, bicycling, fishing, camping, hiking, boating, rafting, and other recreational activities have been popular on the district for decades.

These past activities as well as ongoing activities have led to some habitat modification and fragmentation. These activities, along with some natural events, have all contributed to the reduction of native species diversity in some locations. Native plant diversity is affected by the spread of invasive plants and soil compaction. The St. Joe Ranger District as a whole continues to maintain species diversity. However, in areas such as those along roads, trails, campgrounds, and highly disturbed areas there is a loss of local or site diversity. Some natural events such as wildfires may increase native species, depending upon duration and intensity of the burn. Wildfire in some instances may allow non-native plants to gain a foothold. Further discussion of the existing condition can be found below under Alternative A.

## **Species and Habitat Descriptions**

### **Endangered Species**

No federally listed Endangered plant species are suspected to occur in the Idaho Panhandle National Forests.

### **Threatened Plant Species**

On March 17, 2015, the U.S. Fish and Wildlife Service list of threatened and endangered species that may be present (by Idaho counties) on the IPNF within the evaluation area was accessed (USDI Fish and Wildlife Service 2014a). As of August 14, 2014 the species which may be present in the Idaho Panhandle National Forest are water howellia (*Howellia aquatilis* A. Gray), and Spalding's catchfly (*Silene spaldingii* Wats.). A Threatened species is any that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Water howellia (*Howellia aquatilis*) and Spalding's catchfly (*Silene spaldingii*) are suspected on the St. Joe Ranger District. This means that these species are believed to have potential to occur, but to date neither have been found, although suitable habitat is suspected to occur.

**Water Howellia** (*Howellia aquatilis*): Water howellia, a member of the family Campanulaceae, has the potential to occur on the St. Joe Ranger District. According to the Conservation Strategy for *Howellia aquatilis* (USDA 1994), there are currently 110 known occurrences of the species; most occurrences are in Montana and Washington, with only one known occurrence in Idaho in Latah County. Water howellia occurred historically on the Forest, but is believed to have been extirpated.

Water howellia is an annual aquatic species restricted to small, seasonal, pothole ponds or the quiet water of abandoned river oxbows. It occurs at elevations from 10 feet in Washington to 4,420 feet in Montana. The species reproduces only by seed. Fall drying of the wetland is required for seed germination, while spring submergence is required for the growth and subsequent flowering (USFW 1996). Germination usually occurs in October, presuming the plant's habitat has dried sufficiently to expose the seeds to oxygen. Because of this restrictive habitat requirement, population numbers in a given year are directly influenced by the extent of pond draw-down at the end of the previous growing season (USDA 1994).

Little habitat for Water howellia occurs within the affected environment of the area. District plant records and Idaho Department of Fish and Game Conservation Data Center (ICDC) Element Occurrence records were reviewed. There are no known sites within the district, and no habitat is suspected on roads and trails.

**Spalding's catchfly** (*Silene spaldingii*): Spalding's catchfly, a member of the family Caryophyllaceae, is suspected to occur on the IPNF. It is currently known from 52 sites in west-central Idaho, northwestern Montana, eastern Oregon, eastern Washington, and British Columbia. The total number of individuals is around 16,500 (USDI 2001).

Spalding's catchfly is a long-lived perennial species, which reproduces only by seed (Lichthardt 1997). Individual plants often exhibit long periods of dormancy (one to three years) and may even experience dormancy within a growing season (Lesica 1997). Its habitat is primarily dry grassland habitats and grassland inclusions in ponderosa pine and Douglas-fir forest. Suitable habitat for this species is typically dominated by fescues (*Festuca* species), blue bunch wheat grass (*Pseudoroegneria spicata*), and other bunchgrasses, but also has a high density of forbs.

Habitat for Spalding's catchfly does occur within the affected environment of the area. However those portions of the trails and roads systems within that habitat have been surveyed, and district plant records and Idaho Department of Fish and Game Conservation Data Center (ICDC) Element Occurrence records were reviewed. There are no known sites within the district.

### Proposed and Candidate Species

No federally proposed plant species are suspected to occur in the Idaho Panhandle National Forests at this time. The whitebark pine is listed as a candidate species (USDI 2014a), and is covered under the sensitive species section (PF: B-2).

### Sensitive Species

Sensitive species, as determined by the Regional Forester (USDA 2011a) are those for which population viability is a concern. This can be indicated by a current or predicted downward trend in population numbers or suitable habitat which would reduce the species' existing distribution. Currently, the St. Joe Ranger District recognizes 28 plant species as Sensitive. **Table 9** shows the Sensitive plant species by high potential rare plant habitat guild.

**Table 9: St. Joe Sensitive Plants by Rare Plant Habitat Guild**

Species	Common Name	Habitat Guild
<i>Asplenium trichomanes</i>	maidenhair spleenwort	Rock seeps in moist/wet
<i>Blechnum spicant</i>	deerfern	Moist/wet forest
<i>Botrychium ascendens</i>	upswept moonwort	Wet forest
<i>Botrychium crenulatum</i>	dainty moonwort	Wet forest
<i>Botrychium lanceolatum</i>	triangle moonwort	Wet forest/moist forest
<i>Botrychium lineare</i>	Slender moonwort	Moist forest
<i>Botrychium minganense</i>	Mingan moonwort	Wet forest/moist forest
<i>Botrychium montanum</i>	western goblin	Wet forest
<i>Botrychium paradoxum</i>	paradox moonwort	Wet forest/moist forest
<i>Botrychium pedunculosum</i>	stalked moonwort	Wet forest
<i>Botrychium pinnatum</i>	northwestern moonwort	Wet forest/moist forest
<i>Botrychium simplex</i>	least moonwort	Wet forest/moist forest
<i>Buxbaumia aphylla</i>	leafless bug-on-a-stick moss	Wet forest/moist forest
<i>Buxbaumia viridis</i>	Green bug-on-a-stick moss	Wet forest/moist forest
<i>Cardamine constancei</i>	Constance's bittercress	Deciduous riparian/ moist/wet forest
<i>Cypripedium fasciculatum</i>	clustered lady's slipper	Moist/wet/dry forest
<i>Cypripedium parviflorum var. pubescens</i>	Greater yellow lady's slipper	Peatland/Deciduous Riparian (microsites in moist/wet forests)
<i>Douglasii conservatorum</i>	Bloom peak Douglasii	Subalpine
<i>Drosera intermedia</i>	Spoon-leaved sundew	Peatlands/meadows
<i>Grindelia howellii</i>	Howell's gumweed	Dry forest (St. Joe, basalt breaklands)
<i>Gimimia brittoniae</i>	Britton's Grimmia	Rock outcrops in moist forest
<i>Hookeria lucens</i>	clear moss	Wet forest
<i>Mimulus alsinoides</i>	chickweed monkeyflower	Rock cliffs/seeps in wet/moist/dry forest
<i>Pinus albicaulis</i>	Whitebark pine	Subalpine
<i>Rhizomnium nudum</i>	Naked Mnium	Wet/moist forest
<i>Thelypteris nevadensis</i>	Sierra woodfern	Wet forest seeps
<i>Triantha occidentalis spp brevistyla</i>	sticky asphodel	Subalpine peatlands
<i>Waldsteinia idahoensis</i>	Idaho barren strawberry	Moist and wet forest

\* based on Regional Forester's Sensitive Species list.

Descriptions of each high potential rare plant guild (PF: B-1) include habitat descriptions for the following species located within travel route buffers. Queries of the district stand database and population data from site records up to March 2012 indicate that the following Sensitive plants (**Table 10**) are found within the fifty-foot wide area on either side of a travel routes.

**Table 10: Sensitive Species Found within 50 Feet on Either Side of Travel Routes**

Species	Common Name	# of populations
<i>Blechnum spicant</i>	Deer fern	2
<i>Botrychium minganense</i>	Mingan Moonwort	1
<i>Buxbaumia viridis</i>	Green Bug-on-a-stick	2

<i>Cardamine constancei</i>	Constance's Bittercress	4
<i>Cypripedium fasciculatum</i>	Clustered Lady's-slipper	6
<i>Pinus albicaulis</i>	Whitebark pine	46*
<i>Rhizomnium nudum</i>	Naked Rhizomnium Moss	3

\*The number of populations for whitebark pine is derived from potential habitat across the district and could be fewer than estimated.

### Species of Concern

Species of concern, as determined by the Region One Planning Peer Group (Task Group 19 1997), are considered to be secure at the global, Regional, and state levels, but may be at risk at the Forest planning level. There are currently 31 recognized plant species of concern on the St. Joe Ranger District. These plant species and their associated high potential habitat guilds are shown in the table below (**Table 11**).

**Table 11: St. Joe Plant Species of Concern\***

Species	Common Name	Habitat Guild
<i>Arnica alpina</i> var. <i>tometosa</i>	Fuzzy arnica	Subalpine
<i>Astragalus bourgovii</i>	Bourgeau's milkvetch	Subalpine
<i>Botrychium hesperium</i>	Western moonwort	Moist and Wet Forest
<i>Botrychium michiganense</i>	Michigan moonwort	Wet Forest/Moist Forest
<i>Carex californica</i>	California sedge	Subalpine
<i>Cephalanthera austinea</i> **	phantom orchid	Moist/Wet Forest
<i>Cladonia transcendens</i>	transcending reindeer lichen	Wet Forest
<i>Collema curtisporum</i>	Short-spored jelly lichen	Deciduous riparian
<i>Corydalis caseana</i> spp <i>hastata</i>	Case's fitweed	Wet Forest
<i>Dodecatheon dentatum</i>	white-flowered shooting star	Wet Forest
<i>Ivesia tweedyi</i>	Tweedy's ivesia	Subalpine
<i>Lobaria hallii</i>	Hall's lung wort	Deciduous Riparian
<i>Lobaria scrobiculata</i>	Textured lungwort	Deciduous Riparian
<i>Lomatium brunsfeldianum</i>	Brunsfeld's lomatium	Rocky outcrops
<i>Ludwigia polycarpa</i>	many-fruit false-loosestrife	Peatland/aquatic
<i>Mimulus clivicola</i>	bank monkeyflower	Dry Forests
<i>Orobanche pinorum</i>	Pine broomrape	Dry Forest
<i>Pentagramma triangularis</i>	Goldenback fern	Moist and wet forest
<i>Pilophorus acicularis</i>	Devil's matchstick lichen	Wet Forests
<i>Pilophorus clavatus</i>	Nail lichens	Wet Forests
<i>Platanthera orbiculata</i>	round-leaved orchid	Moist/Wet Forest
<i>Ribes sanguineum</i>	red-flowered current	Moist forest
<i>Romanzoffia sitchensis</i>	Sitka mistmaiden	Subalpine
<i>Sedum rupicolum</i>	lance-leaved sedum	Subalpine
<i>Sphaerophorus globosus</i>	Christmas tree lichen	Wet Forest
<i>Tauschia tenuissima</i>	Lieberg's tauschia	Dry/Moist Forest, meadows
<i>Thalictrum dasycarpum</i>	Purple meadowerue	Wet forest and wet meadows
<i>Thamnolia subuliformis</i>	Whiteworm lichens	Subalpine (ridges and rock out crops)
<i>Trientalis latifolia</i>	western starflower	Deciduous Riparian/Moist/Wet Forest
<i>Tuckermannopsis sepincola</i> **	Eyed ruffle lichen	Deciduous Riparian, Peatland
<i>Vallisneria americana</i>	wild celery	Aquatic

\*As directed by the Species of Concern Protocol (Region One Planning Peer Group, Task Group 19, March 1997), species of concern are considered to be secure at the global, Regional, and state levels, but may be at risk at the Forest planning level. Species on this list will be surveyed for, documented, reported when found, and addressed in environmental documents (per NFMA) when viability within the planning unit is an issue.

\*\*Name change

A description of each high-potential rare plant guild is located in project file document B-1. Please see these descriptions for habitat descriptions for the following species located within travel route buffers. Queries of the district stand database and population data from site records up to March 2012 indicate that the following Species of Concern plants (**Table 12**) are found within the fifty foot wide area on either side of a travel route.

**Table 12: Species of Concern Found within 50 Feet on Either Side of Travel Routes**

Species	Common Name	# of populations
<i>Carex californica</i>	California Sedge	5
<i>Corydalis caseana ssp. hastate</i>	Case's Corydalis	1
<i>Dodecatheon dentatum</i>	White Shooting-star	4
<i>Ivesia tweedyi</i>	Tweedy's ivesia	1
<i>Mimulus clivicola</i>	Bank Monkeyflower	6
<i>Pilophorus acicularis</i>	Devil's matchstick lichen	1
<i>Platanthera orbiculata</i>	Round-leaved Rein-orchid	1
<i>Sphaerophorus globosus</i>	Christmas tree Lichen	1

## **Environmental Consequences**

### **Alternative A: No-Action Alternative**

This alternative would maintain the existing level of management on the St. Joe Ranger District. It does not propose any new management.

#### *Direct and Indirect Effects of Alternative A*

Alternative A would result in no direct effects or change in conditions to TES and FSOC plants. The existing level of management would continue. Changes to road and trail access would occur on a project-by-project basis, and any new TES or FSOC plant sites would be protected on a project-by-project basis. Known Sensitive and FSOC plants plant sites are managed to maintain population integrity. The existing condition allows for cross-country motorized travel. This type of travel creates ground disturbance in habitats with potential for rare plants and creates vectors for invasion by noxious weeds.

The indirect effects of this alternative would consist of the spread of noxious weeds along motorized routes. See previous Noxious Weeds section. The extent of the affected area specific to high-potential Sensitive and FSOC plant habitat is displayed in **Table 13** and **Table 14** for roads and trails.

**Table 13: Road Miles per High-Potential Habitat - Alternative A (Existing Condition)**

Habitat Type	Open	Seasonal	OHV ≤50"
Dry	13	0	2.5
Moist	21.2	0	2
Wet	37.4	0	2
Sub-Alpine	21.4	0	2
<b>Total miles</b>	<b>93</b>	<b>0</b>	<b>8.5</b>

Anecdotal evidence and observations by the district personnel show that invasion by noxious weeds into trail systems occur with the greatest concentration at trail heads on the St. Joe Ranger District. The width, slope, habitat, canopy cover, and amount of use determine if the weeds will invade further into the trail system (see Weeds section for further information). **Table 14** shows the miles of trails in high potential habitat for TES and FSOC plant species. These habitats have the greatest risk for noxious weed invasion.

**Table 14: Trail Miles per High-Potential Habitat- Alternative A (Existing Condition)**

Habitat Type	Non-motorized	STM	Seasonal	OHV ≤50"
Dry	4	7	0	0
Moist	4	7	0	0
Wet	4	7	0	0
Sub-Alpine	4	7	0	0
<b>Total Miles</b>	<b>16</b>	<b>28</b>	<b>0</b>	<b>0</b>

Known Sensitive and FSOC plant species sites are currently under management to maintain the integrity and health of the population(s).

#### *Cumulative Effects of Alternative A*

Past activities such as road and trail construction, timber harvest, recreational use, and natural events have all contributed to habitat degradation, modification, and fragmentation on various levels and created possible vectors for weed encroachment that may threaten Sensitive and FSOC plants. Current and reasonably foreseeable activities include grazing, timber harvest and related activities, mining, firewood collection, recreational activities, road and trail maintenance, road construction, road decommissioning, livestock grazing and fire suppression activities.

Native plant diversity is affected by the spread of invasive plants and soil disturbance as noxious weeds displace native plants in localized areas; however native species diversity across the district should be maintained. Roads, trails, campgrounds, and highly disturbed areas would be the areas where there is a loss of native diversity. These areas would continue to be at risk for decreased diversity if noxious weeds invade. The current noxious weed treatment program helps to maintain sites species diversity by treating noxious weeds and planting with native species where feasible. These treatments help to maintain site diversity by reducing the available habitat open to invasion.

The cumulative effects of the No-Action Alternative are predicted to be low, with the greatest potential for negative effects to occur with noxious weed invasion along travel routes provided that funding is available to continue weed treatments. The St. Joe Ranger district conducts an annual program of noxious weed inventory and control, but current funding does not provide for treatment of every road that is infested. To maximize effectiveness of existing funding levels, weed treatment and prevention projects are prioritized and conducted in accordance with the St. Joe Ranger District Noxious Weeds Final EIS and ROD (USDA Forest Service 1999). Also, District weed control efforts are coordinated with the Inland Empire Cooperative Weed Management Area which consists of federal, state, county, and private entities. The Forest Service includes measures for noxious weed prevention in all contracts. Roads and trails are prioritized for weed treatment and treatments are carried out annually according to available funding. Partnerships with counties, state, and private organizations contribute to the effectiveness of the district noxious weed program.

Weed treatment and prevention practices, such as seeding disturbed soils with non-invasive plants would reduce, but not eliminate, the risk of weed spread. The Forest Service does not have control over activities occurring on private lands; weed introduction and spread may occur in these areas.

Cross country travel off designated routes may also disturb Sensitive and FSOC plants and their habitats. This disturbance and other effects, such as creating niches for weeds, could potentially reduce the viability of populations.

Past activities on federal lands prior to policies affording protection of rare plants have affected populations and habitat of sensitive plant species. Populations, when found, are protected. Known Sensitive and FSOC plant species sites are currently under management to maintain the integrity and health of each population.

#### Alternative B

All motorized routes under Alternative B are existing roads and trails. No new construction or ground disturbance would be implemented. The prohibition of motorized travel off designated routes, prohibition of motorized cross-country (except in limited areas for dispersed camping), and design features to protect resources would be included in Alternative B.



### *Direct and Indirect Effects of Alternative B*

There would be no direct effects to TES or FSOC plants from implementation of Alternative B. All routes designated for motorized uses under this alternative are existing roads and trails, and no new construction or ground disturbance would be implemented.

The indirect effects of the Alternative B would consist of the potential spread of noxious weeds along designated motorized routes. The extent of the affected area is displayed in **Table 15** for roads and **Table 16** for trails. Plant seeds and parts are moved by motorized vehicles along roadways, which act as conduits for noxious weed infestation. Once established along roadways, weeds can spread into adjacent, un-infested habitat and compete with native plant communities.

**Table 15: Road Miles per High-Potential Habitat: Alternative B**

Habitat Type	Open	Seasonal	OHV ≤50"
Dry	13.3	.4	1.2
Moist	21.1	.9	2
Wet	21.4	.1	2
Sub-Alpine	21.4	.1	2
<b>Total miles</b>	<b>77.2</b>	<b>1.5</b>	<b>7.2</b>

\*includes barriered and gated roads which may have other incidental use

While Alternative B would have a minor increase in seasonal motorized roads there would be a 16.8-mile decrease in open roads from the existing condition in areas with high-potential habitat for Sensitive and FSOC plants. This decrease would seem to be small; however, it is a 17% reduction in motorized routes in high-potential habitat for Sensitive and FSOC plants. That translates into a reduction of risk for weed invasion into potential habitat.

**Table 16: Trail Miles per High-Potential Habitat: Alternative B**

Habitat Type	Non-motorized	STM	Seasonal	OHV ≤50"
Dry	6	4.4	.1	.13
Moist	6	4.4	.1	.13
Wet	6	4.4	.1	.13
Sub-Alpine	6	4.4	.1	.13
<b>Total Miles</b>	<b>24</b>	<b>17.6</b>	<b>.4</b>	<b>.52</b>

Alternative B would also decrease single-track motorized trails in high-potential Sensitive and FSOC plant habitat. The increase in ATV trails in these habitats is minor at .52 miles. Also there would be an eight-mile increase in non-motorized designated trails from existing levels within these habitats. These numbers translate into a reduction of potential negative effects for Sensitive and FSOC plants as well.

The prohibition of travel off designated routes except in limited areas for access to dispersed sites would assist in minimizing the spread of weeds. Decreased travel in these "off road" areas would help maintain native plant habitats. To date the only known species of rare plant in dispersed sites is whitebark pine. Dispersed camping is not known to negatively affect this species. If other Sensitive or FSOC species are found in dispersed sites a Forest Service botanist will review the location for appropriate measures of protection.

Known TES and FSOC plant species sites are currently under management to maintain the integrity and health of each population and will continue to be managed under Alternative B.

## Alternative C

All motorized routes under Alternative C are existing roads and trails, and no new construction or ground disturbance would be implemented. Additionally the prohibition of motorized travel off designated routes, prohibition of motorized cross-country travel, limited use of motorcycles to maintain specific trails not designated for public motorized use, and design features to protect resources would be included in Alternative C.

### *Direct and Indirect Effects of Alternative C*

There would be no direct effects to TES or FSOC plants from implementation of Alternative C. All routes designated for motorized uses under this alternative are existing roads and trails, no new construction or ground disturbance would be implemented.

The indirect effects of the Alternative C would consist of the spread of noxious weeds along designated motorized routes. The extent of the affected area is displayed in **Table 17** for roads and **Table 18** for trails. Plant seeds and parts are moved by motorized vehicles along roadways, which act as conduits for noxious weed infestation. Once established along roadways, weeds can spread into adjacent, un-infested habitat and compete with native plant communities.

The prohibition of travel off designated routes except in limited areas for dispersed camping would assist in minimizing the spread of weeds. Decreased travel in these “off road” areas would help maintain native plant habitats. To date the only known species of rare plant in dispersed sites is whitebark pine. Dispersed camping is not known to negatively affect this species. If other Sensitive or FSOC species are found in dispersed sites a Forest Service botanist will review the location for appropriate measures of protection.

**Table 17: Road Miles per High-Potential Habitat: Alternative C**

Habitat Type	Open	Seasonal	OHV ≤50"
Dry	13	.4	2
Moist	21.1	.9	2.2
Wet	20.9	.1	2.2
Sub-Alpine	21.2	.1	2.2
<b>Total miles</b>	<b>76.2</b>	<b>1.5</b>	<b>8.6</b>

The difference between open/ATV roads in Alternative C is not much different from Alternative B. Like Alternative B, there would be a reduction of about 17% in motorized routes in high-potential habitat for Sensitive and FSOC plants when compared to Alternative A. That translates into a reduction of risk for weed invasion into potential habitats.

**Table 18: Trail Miles per High-Potential Habitat - Alternative C**

Habitat Type	Non-motorized	STM	Seasonal	OHV ≤50"
Dry	5.1	5.1	.3	.13
Moist	5.1	5.1	.3	.13
Wet	5.1	5.1	.3	.13
Sub-Alpine	5.1	5.1	.3	.13
<b>Total Miles</b>	<b>20.4</b>	<b>20.4</b>	<b>1.2</b>	<b>0.52</b>

Alternative C would decrease motorized trails in high potential Sensitive and FSOC plant habitat by 5.88 miles, compared to Alternative A. Known Sensitive and FSOC plant species sites are currently under management to maintain the viability and health of each population and will continue to be managed to maintain their viability under Alternative C. The prohibition of motorized travel off designated routes and the prohibition of motorized cross-country travel would assist in minimizing the spread of weeds. Decreased travel in these “off road” areas will help maintain native plant habitats.

## Alternative D

Alternative D includes the designation of motorized routes, prohibition of motorized cross-country travel, limited motorized access to dispersed camping sites, motorized access for trail maintenance on some non-motorized trails, design features to protect resources, and monitoring.

### *Direct and Indirect Effects of Alternative D*

There would be no direct effects to TES or FSOC plants from implementation of Alternative D. All routes designated for motorized uses under this alternative are existing roads and trails, no new construction or ground disturbance would be implemented.

The indirect effects of the Alternative D would consist of the spread of noxious weeds along designated motorized routes. The extent of the affected area is displayed in **Table 19** for roads and **Table 20** for trails. Plant seeds and parts are moved by motorized vehicles along roadways, which act as conduits for noxious weed infestation. Once established along roadways, weeds can spread into adjacent, un-infested habitat and compete with native plant communities.

**Table 19: Road Miles per High-Potential Habitat - Alternative D**

Habitat Type	Open	Seasonal	OHV ≤50"
Dry	13	.4	2
Moist	21.1	.9	2.2
Wet	20.9	.1	2.2
Sub-Alpine	21.2	.1	2.2
<b>Total miles</b>	<b>76.2</b>	<b>1.5</b>	<b>8.6</b>

Motorized routes in high-potential habitat for Sensitive and FSOC plants would be reduced by approximately 17% compared to the existing condition (Alternative A.) That translates into a reduction of risk for weed invasion into potential habitat(s).

**Table 20: Trail Miles per High-Potential Habitat - Alternative D**

Habitat Type	Non-motorized	STM	Seasonal	OHV ≤50"
Dry	5.1	5.1	.3	.13
Moist	5.1	2.1	3.3	.13
Wet	5.1	5.1	.3	.13
Sub-Alpine	4.37	5.8	.3	.13
<b>Total Miles</b>	<b>19.67</b>	<b>18.1</b>	<b>4.2</b>	<b>.13</b>

As in Alternatives B and C, the prohibition of travel off designated routes, except in limited areas to access dispersed sites, and the elimination of legal motorized cross-country travel would assist in minimizing the spread of weeds thus improving the protection for native plants. To date the only known species of rare plant in dispersed sites is whitebark pine. Dispersed camping is not known to negatively affect this species. If other TES or FSOC species are found in dispersed sites a Forest Service botanist will review the location for appropriate measures of protection.

The Wild portion of the Wild and Scenic River (between Heller Creek Campground and Medicine Creek) is another exception to the 300-foot dispersed camping corridor. Motorized access for dispersed camping would be prohibited. Motorized access would not be allowed off Road 320 between Heller Creek Campground and Medicine Creek except on designated routes.

Alternative D has an increase in motorized trails in high potential Sensitive and FSOC plant habitat compared to the other action alternatives. All of the increase is in the Sub-alpine guild. Compared to Alternatives B and C the

increase is approximately 1.4 miles and 0.7 miles of single-track trail designation, respectively. There is no change in miles of road designations between Alternative D and Alternative C (see road discussion under Alternative C).

Known Sensitive and FSOC plant species sites are currently under management to maintain the integrity of each population and will continue to be managed under Alternative D.

The prohibition of motorized travel off designated routes and the prohibition of motorized cross-country travel (except in limited areas for dispersed camping) would assist in minimizing the spread of weeds. Decreased travel in these “off road” areas would help maintain native plant habitats.

#### Cumulative Effects of Alternatives B, C, and D

Past activities such as road and trail construction, recreational use, and natural events have all contributed to habitat degradation, modification, and fragmentation on various levels and created possible vectors for weed encroachment that may displace native plants. Current and reasonably foreseeable activities include grazing, timber harvest and related activities, mining, firewood collection, recreational activities, road and trail maintenance, and fire suppression activities.

There is not a cumulative difference large enough to have adverse or negative effects in the amounts of affected high potential Sensitive and FSOC plant habitat between Alternatives B, C, and D. The cumulative effects are predicted to be low with the greatest potential for negative effects to occur with noxious weed invasion along travel routes. The St. Joe Ranger District conducts an annual program of noxious weed inventory and control, but current funding does not provide for treatment of every road and trail that is infested. Funding was decreased in 2011, 2012, 2013, and is expected to continue in a downward trend. Weed treatment and prevention projects are prioritized and conducted in accordance with the St. Joe Ranger District Noxious Weeds Final EIS and ROD (USDA Forest Service 2000). District weed control efforts are coordinated with the Inland Empire Cooperative Weed Management Area which consists of federal, state, county, and private entities. The Forest Service includes measures for noxious weed prevention in all contracts. Roads and trails are prioritized for weed treatment, and treatments are carried out annually according to available funding. Partnerships with counties, state, and private organizations contribute to the effectiveness of the district noxious weed program.

Weed treatment and prevention practices, such as seeding with non-invasive plants would reduce, but not eliminate, the risk of weed spread. The Forest Service does not have control over activities occurring on private lands; weed introduction and spread is likely occurring in these areas also.

Past activities on federal lands prior to policies affording protection of rare plants, have affected populations and habitat of sensitive plant species. Populations, when found, are protected. Known Sensitive and FSOC plant species sites are currently under management to maintain the viability and integrity of each population and would continue to be managed for such under Alternative D. Native plant diversity would remain the same as the existing condition across the district because some landscapes have no invasive plants at this time, and Alternative D would reduce motorized access when compared to the existing condition. Activities on state and private lands are not required to protect these species, therefore, loss of populations and modification of habitat is likely occurring.

#### Determination of Effects for TES Plant Species

Based on the above analysis the following tables represent the determination of effects to TES and FSOC plants for each alternative. A list of sensitive species and a description of habitat guilds is included in the project files (B-1).

**Table 21: Determination of Effects for Listed Species**

<b>Common Name</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
Water howellia	NE	NE	NE	NE
Spalding's catchfly	NE	NE	NE	NE

NE - No Effect

**Table 22: Determination of Effects for Sensitive Plants**

Common Name	Alternative A	Alternative B	Alternative C	Alternative D
Maidenhair spleenwort	NI	NI	NI	NI
deerfern	MII	NI	NI	NI
upswept moonwort	NI	NI	NI	NI
dainty moonwort	NI	NI	NI	NI
triangle moonwort	NI	NI	NI	NI
Slender moonwort	NI	NI	NI	NI
Mingan moonwort	MII	NI	NI	NI
western goblin	NI	NI	NI	NI
paradox moonwort	NI	NI	NI	NI
stalked moonwort	NI	NI	NI	NI
northwestern moonwort	NI	NI	NI	NI
least moonwort	NI	NI	NI	NI
leafless bug-on-a-stick moss	NI	NI	NI	NI
green bug-on-a-stick moss	MII	NI	NI	NI
Constance's bittercress	MII	NI	NI	NI
clustered lady's slipper	MII	NI	NI	NI
greater yellow lady's slipper	NI	NI	NI	NI
Bloom peak Douglasii	NI	NI	NI	NI
Spoon-leaved sundew	NI	NI	NI	NI
Howell's gumweed	NI	NI	NI	NI
Britton's Grimmia	NI	NI	NI	NI
clear moss	NI	NI	NI	NI
chickweed monkeyflower	NI	NI	NI	NI
whitebark pine	MII	NI	NI	NI
Naked Mnium moss	MII	NI	NI	NI
Sierra woodfern	NI	NI	NI	NI
sticky asphodel	NI	NI	NI	NI
Idaho barren strawberry	NI	NI	NI	NI

\*based on Regional Forester's TES list. NI - No Impact, MII-May Impact Individuals Only

**Table 23: Determination of Effects for St. Joe Species of Concern\***

Common Name	Alternative A	Alternative B	Alternative C	Alternative D
fuzzy arnica	NI	NI	NI	NI
Bourgeau's milkvetch	NI	NI	NI	NI
Western moonwort	NI	NI	NI	NI
Michigan moonwort	NI	NI	NI	NI
California sedge	MII	NI	NI	NI
phantom orchid	NI	NI	NI	NI
Henderson's sedge	NI	NI	NI	NI
transcending reindeer lichen	NI	NI	NI	NI
short-spored jelly lichen	NI	NI	NI	NI
Case's fitweed	MII	NI	NI	NI
white-flowered shooting star	MII	NI	NI	NI
Tweedy's ivesia	MII	NI	NI	NI
Hall's lung wort	NI	NI	NI	NI
Textured lungwort	NI	NI	NI	NI
Brunsfeld's lomatium	NI	NI	NI	NI
many-fruit false-loosestrife	NI	NI	NI	NI
bank monkeyflower	MII	NI	NI	NI
Pine broomrape	NI	NI	NI	NI
Sitka mistmaiden	NI	NI	NI	NI
Glodenback fern	NI	NI	NI	NI
Devil's matchstick lichen	MII	NI	NI	NI
nail lichens	MII	NI	NI	NI
round-leaved orchid	NI	NI	NI	NI
red-flowered current	NI	NI	NI	NI
lance-leaved sedum	NI	NI	NI	NI

Common Name	Alternative A	Alternative B	Alternative C	Alternative D
Christmas tree lichen	MII	NI	NI	NI
Lieberg's tauschia	NI	NI	NI	NI
purple meadowrue	NI	NI	NI	NI
whiteworm lichens	NI	NI	NI	NI
western starflower	NI	NI	NI	NI
eyed ruffle lichens	NI	NI	NI	NI
wild celery	NI	NI	NI	NI

\*As directed by the Species of Concern Protocol (Region One Planning Peer Group, Task Group 19, March 1997), species of concern are considered to be secure at the global, Regional, and state levels, but may be at risk at the Forest planning level. Species on this list will be surveyed for, documented, reported when found, and addressed in environmental documents (per NFMA) when viability within the planning unit is an issue.

#### Consistency with Forest Policy and Legal Mandates Related to TES Plants

All alternatives would meet the intent of the Forest Plan (USDA 2015), the USDA Forest Service policy (FSM 2670.32 and 2672.4), and the Endangered Species Act by:

- maintaining viable populations of TES plants as stated in determination of effects,
- maintaining habitat for plant species listed under the Endangered Species Act,
- not affecting federally listed species because none have been found on the district; and
- not impacting Regional sensitive or Forest species of concern.

All alternatives meet the 2015 Forest Plan goal to maintain the geographic distributions of sensitive plant species (2015 Forest Plan p. 14); because no ground disturbance of known sites would occur. Any sites along trails and roads identified in the future will be managed to maintain the viability of the population.

All alternatives are within the 2015 Forest Plan's guideline to "evaluate proposed management activities for the presence of occupied or suitable habitat on the sensitive species list... and provide mitigation or protection to maintain occurrences or habitats that are important for species sustainability" (USDA 2015). Sensitive plant sites within road and trail templates that have already been identified are protected with the maintenance program. Each year the district botanist reviews trails and roads with potential maintenance activities for TES and FSOC plant species.